

A REVISION OF THE NORTH AMERICAN ICHNEUMON- FLIES OF THE SUBFAMILY OPIINAE.

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It is the intention to present, in the following pages, a synoptic revision of the Braconid subfamily Opiinae for North America, including only those Mexican and West Indian species the types or paratypes of which are in the United States National Museum. Keys to genera and species are accompanied by descriptions of nineteen new species, together with some notes on described forms.

With the exception of seven species described by H. L. Viereck, the types of which are in the Snow collection at the University of Kansas and not obtainable, type or paratype specimens of all the described species have been studied. Through Prof. S. J. Hunter, entomologist of Kansas University, notes on the Viereck types were obtained which, together with the original descriptions, have permitted the placing of these species in the keys.

Thanks are due and are cheerfully accorded to the Rev. V. A. Huard, of the Provincial Museum, Quebec, Canada, for the loan of the Provancher types, and to Prof. S. J. Hunter for the notes already referred to.

Superfamily ICHNEUMONOIDEA.

Family BRACONIDAE.

Subfamily OPIINAE.

1862. *Opioidae* FOERSTER, family 24, Verh. d. Naturh. ver-Preuss. Rheinl., vol. 19, pp. 229, 258.
1885. *Opiides* MARSHALL, Trans. Ent. Soc. London, p. 11.
1887. *Opiinae* CRESSON, Syn. Hym. North America, pp. 56, 61.
1888. *Opiidae* MARSHALL, Spec. d. Hym. d. Eur., vol. 4, p. 67.
1901. *Opiinae* ASHMEAD, Proc. U. S. Nat. Mus., vol. 23, pp. 112, 133.
1904. *Opiinae* SZEPLIGETI, Wytzman's Genera Insectorum, Braconidae, pp. 5 and 158.

Head transverse; occiput (except in the genus *Ademon*) never completely margined though usually margined at the sides; mandibles crossing at the tips and bi-dentate at apex; clypeus either fitting

close to the mandibles or arcuated anteriorly leaving a transverse, elliptical opening between; antennae filiform. Thorax rather short and robust, the parapsidal grooves present or absent; anterior wings with three cubital cells, radial cell complete (open in the genus *Ademon*) and terminating at or somewhat before the wing apex though never shorter on the anterior margin of the wing than the length of the stigma, submedian cell usually a little longer than the median cell, anal cell never divided by a transverse nervure; posterior wing with the radius usually effaced, the submedian cell as measured on the median nervure at least one-third the length of the median. Legs normal, the posterior tibial spurs short. Abdomen inserted between the posterior coxae, subsessile or subpetiolate, usually shorter than the combined head and thorax, ovate or elliptical, the apical segments often somewhat retracted in the female; ovipositor variable, more often concealed or very short but frequently as long as the abdomen or even longer.

Many Opiinae are not readily separated from some of the smaller Braconinae while others can easily be mistaken for small Alysiids. They can be distinguished from Braconines, however, by the longer submedian cell of the hind wing and the slightly different character of the opening between the clypeus and mandibles. From Alysiids they may always be distinguished by the mandibles.

The group offers a few good characters for the separation of species but does not yield itself readily to separation into well-defined genera. Many of the recorded genera are based upon trivial and unreliable characters which make their retention impossible.

American writers have confined themselves almost entirely to descriptions of isolated species in this group. Dr. W. H. Ashmead has given a generic synopsis in his *Classification of the Ichneumon-Flies* which is, however, largely a translation from Foerster. Cresson, Provancher, Ashmead, Viereck, and the writer have published descriptions of species. Of those described by Provancher, only four species are properly placed in Opiinae. Several of Ashmead's species also prove to belong in other groups of the Braconidae while four species described by him as Alysiids are really Opiines.

A number of forms are known to the writer, descriptions of which are not included in this paper for the reason that they are represented only by imperfect specimens or specimens accompanied by insufficient data.

Species of Opiinae have been recorded as parasitic on Dipterous, Coleopterous, and Lepidopterous insects. The usual hosts are phytophagous Diptera, belonging to the families Agromyzidae, Trypetidae, Anthomyiidae, and related families, but there can be little doubt that some species do attack Lepidopterous leaf-miners. That any are parasitic on Coleoptera remains to be proven.

Silvestri's observations on the parasites of African fruit flies¹ and my own experience indicate that the egg of the parasite is apparently in all cases deposited in or upon the host larva in one of its immature stages. In all instances observed, the host larva completed its development and assumed the pupal stage before being killed by the parasite. The parasitic larva then underwent its transformation in the puparium and emerged at about the time when the adult fly would have emerged.

BIBLIOGRAPHY OF THE GENERA AND THEIR SYNONYMY.

- Ademon* HALIDAY, Ent. Mag., vol. 1, 1833, p. 266.
Allotypus FOERSTER, Verh. Naturh. ver. preuss. Rheinl., vol. 19, 1862, p. 259=*Opius*.
Apodesmia FOERSTER, Vehr. Naturh. ver. preuss. Rheinl., vol. 19, 1862, p. 259=*Opius*.
Aulonotus ASHMEAD, Canad. Ent., vol. 32, 1900, p. 368=*Opius*.
Austropius SZEPLIGETI, Termes Fuzetek, vol. 23, 1900, p. 64.
Biophthora FOERSTER, Verh. Naturh. ver. preuss. Rheinl., vol. 19, 1862, p. 259=*Opius*.
Biosteres FOERSTER, Verh. Naturh. ver. preuss. Rheinl., vol. 19, 1862, p. 259=*Opius*.
Cephaloplitus SZEPLIGETI, Termes Fuzetek, vol. 20, 1897, p. 600.
Chilotrichia FOERSTER, Verh. Naturh. ver. preuss. Rheinl., vol. 19, 1862, p. 258=*Opius*.
Cryptonastes FOERSTER, Verh. Naturh. ver. preuss. Rheinl., vol. 19, 1862, p. 260=*Opius*.
Desmatophorus THOMSON, Opus. Ent., 1895, p. 2194=*Opius*.
Desmiostoma FOERSTER, Verh. Naturh. ver. preuss. Rheinl., vol. 19, 1862, p. 260=*Opius*.
Diachasma FOERSTER, Verh. Naturh. ver. preuss. Rheinl., vol. 19, 1862, p. 259=*Opius*.
Diachasmimorpha VIERECK, Proc. U. S. Nat. Mus., vol. 44, 1913, p. 641=*Opius*.
Diraphus WESMAEL, Nouv. Mem. Acad. Sc. Bruxelles, vol. 11, 1838, p. 89=*Gnamptodon*.
Eurytenes FOERSTER, Verh. Naturh. ver. preuss. Rheinl., vol. 19, 1862, p. 259.
Eutrichopsis FOERSTER, Verh. Naturh. ver. preuss. Rheinl., vol. 19, 1862, p. 260=*Opius*.
Giardinaia PEREZ, Zool. Jahrb. Syst., vol. 15, 1902, p. 631.
Gnamptodon HALIDAY, Ent. Mag., vol. 1, 1833, p. 265.
Hedylus MARSHALL, Trans. Ent. Soc. Lond., 1891, p. 16.
Holconotus FOERSTER, Verh. Naturh. ver. preuss. Rheinl., vol. 19, 1862, p. 259=*Opius*.
Hypocynodus FOERSTER, Verh. Naturh. ver. preuss. Rheinl., vol. 19, 1862, p. 260=*Opius*.
Hypolabis FOERSTER, Verh. Naturh. ver. preuss. Rheinl., vol. 19, 1862, p. 260=*Opius*.
Lytacra FOERSTER, Verh. Naturh. ver. preuss. Rheinl., vol. 19, 1862, p. 258=*Opius*.
Mesotages FOERSTER, Verh. Naturh. ver. preuss. Rheinl., vol. 19, 1862, p. 258=*?Hedylus*.
Nosopoea FOERSTER, Verh. Naturh. ver. preuss. Rheinl., vol. 19, 1862, p. 260=*Opius*.
Opiellus ASHMEAD, Can. Ent., vol. 32, 1900, p. 368=*Opius*.
Opius WESMAEL, Nouv. Mem. Acad. Sc. Bruxelles, vol. 9, 1835, p. 115.
Phaedorotoma FOERSTER, Verh. Naturh. ver. preuss. Rheinl., vol. 19, 1862, p. 260=*Opius*.
Rhabdospilus THOMSON, Opus. Ent., 1895, p. 2198=*Opius*.
Rhabdospilus FOERSTER, Verh. Naturh. ver. preuss. Rheinl., vol. 19, 1862, p. 259=*Opius*.

¹ Bull. No. 3, Div. of Ent. Hawaiian Board of Agriculture and Forestry.

Rhinoplus FOERSTER, Verh. Naturh. ver preuss. Rheinl., vol. 19, 1862, p. 258.
Stenospilus FOERSTER, Verh. Naturh. ver preuss. Rheinl., vol. 19, 1862, p. 259=*Opius*.
Stiropius CAMERON, Journ. Roy. Agri. and Com. Soc. British Guiana, 1911, p. 329.
Sulydus BUYSSON, Ann. Soc. Ent. Fr., 1897, p. 354.
Therobolus FOERSTER, Verh. Naturh. ver preuss. Rheinl., vol. 19, 1862, p. 260=*Opius*.
Trichopilus THOMSON, Opus. Ent., 1895, p. 2176=*Opius*.
Trigonospilus ASHMEAD, Proc. U. S. Nat. Mus., vol. 23, 1901, p. 134=?*Opius*.
Uteles FOERSTER, Verh. Naturh. ver preuss. Rheinl., vol. 19, 1862, p. 261=*Opius*.
Zetetes FOERSTER, Verh. Naturh. ver preuss. Rheinl., vol. 19, 1862, p. 258=*Opius*.

The treatment of the genera as given here does not differ radically from that by Szepligeti except that the genera *Biosteres* and *Diachasma* are combined with *Opius*. After a careful study of all the available material, including a number of European species, the writer is convinced that it is impossible to point out any character or group of characters that will always separate these groups. The extremes of the genus *Opius* as thus constituted appear at first glance to be quite different insects, but there is such a perfect gradation and duplication of characters from one type to the other that I am compelled to believe that they should constitute but one genus. The name *Biosteres* has been shown by Viereck¹ to be isogenotypic with *Opius* Wesmael, and to attempt to retain the old grouping would necessitate changing the generic names of the majority of described Opiinae.

Stiropius is a genus described by Cameron from South America since the publication of Szepligeti's monograph.

Giardinaia, described by De Stefani Perez, is too insufficiently characterized to permit of its being placed in the key. It may or may not be an Opiine.

Diaschasmimorpha Viereck, described from India, can not be distinguished from *Opius* as here defined.

Trigonospilus Ashmead, the type of which has not been located, is believed also to be an *Opius*.

Key to the genera.

1. Occiput completely margined; radial nervure effaced before attaining the wing margin; body rugulosely sculptured *Ademon* Haliday.
 Occipital carina incomplete; radial nervure attaining the wing margin; body usually smooth and polished. 2.
2. Suturiform articulation deep, foveolate, and strongly arched, the convexity of the arch toward the apex of the abdomen; third tergite with an oblique furrow from the anterior middle to the lateral margins. *Gnamptodon* Haliday.
 Suturiform articulation obsolete, or if defined, then straight, shallow, and not foveolate; third tergite without oblique furrows. 3.
3. Clypeus three-toothed. *Sulydus* Du Buysson.
 Clypeus not three-toothed. 4.
4. Clypeus with a stout horn. *Rhinoplus* Foerster.
 Clypeus without a horn. 5.

¹ Bull. 83, U. S. Nat. Mus., 1914, p. 21.

5. First and second abdominal tergites with a median carina; second abscissa of radius not longer than the second transverse cubitus.....*Stiropius* Cameron.
Second tergite always without a median carina; second abscissa of radius usually longer than the second transverse cubitus..... 6.
6. Face with two stout horns.....*Cephalopites* Szepligeti.
Face without horns..... 7.
7. First cubital cross vein thicker than the other veins.....*Austroopius* Szepligeti.
First cubital cross vein normal..... 8.
8. Radius arising from the extreme base of the stigma.....*Eurytenes* Foerster.
Radius arising distinctly beyond the base of stigma..... 9.
9. Abdomen subpetiolate, the first tergite at least three times as long as broad; subdiscoidal nervure arising from the upper angle of the second discoidal cell; second cubital cell short, the second radial abscissa scarcely longer than the second cubital crossvein.....*Hedylus* Marshall.
Abdomen subsessile or sessile, the first tergite not three times as long as broad; subdiscoidal nervure arising at or below the middle of the second discoidal cell; second abscissa of radius longer.....*Opius* Wesmael.

Genus ADEMON Haliday.

This genus is characterized by the completely margined occiput, the open radial cell, and the rugulose sculpture of the body. The recurrent nervure joins the first cubital cell some distance before the basal nervure, the second abscissa of radius is about equal to the first cubital cross vein, and the stigma is rather long and narrow. Ashmead placed the genus in his tribe Rhyssalini, but both Marshall and Szepligeti have placed it with the Opiinae. The writer doubts its affinity with the Opiinae, but has included it here for want of a better understanding of its relationship.

ADEMON NIGER Ashmead.

Rhyssalus niger ASHMEAD, Bull. Ill. St. Lab. Nat. Hist., vol. 4, 1895, p. 276.

Male.—Length 2 mm. Head, thorax, and abdomen to apex of third segment finely coriaceous and opaque; head transverse narrowed behind, the posterior orbits receding and broader than the width of the eyes; face rugose, the clypeus smooth, less than twice as broad as long and applied close to the mandibles; occiput concave, the occipital carina prominent; vertex behind the ocelli with a small subtriangular smooth area bounded by sharp carinae; antennae very slender, 24-jointed, the first flagellar joint much longer than the second and following joints; mesoscutum with the parapsidal grooves effaced except anteriorly; mesopleurae with a crenulate impression below propodeum irregularly rugose with a median longitudinal carina; wings longer than the whole body, the stigma long and narrow; legs very long and slender; abdomen ovate, about as long as the head and thorax, its first tergite much wider at apex than at base; suturiform articulation distinct, the third segment not half as long as the second; apical segments smooth. Body color brownish-black; antennal pedicel, mandibles, all coxae, and all femorae yellow; apices of femorae,

all tibiae, and all tarsi dark brown; antennae black; wing veins and stigma pale brownish.

Habitat.—Havana, Illinois.

Four specimens bearing Illinois State Laboratory of Natural History, No. 13068. According to Mr. C. A. Hart these specimens were taken by him September 23, 1894, on the shore of Quiver Lake, near Havana, Illinois, where they were found running about on the surface of duckweed (*Lemna*).

Genus GNAMPTODON Haliday.

This genus is like *Opius*, except that the second abscissa of radius is scarcely longer than the first abscissa, the second cubital cell very short, and the abdomen is quite different, the suture between the second and third tergites being deep, foveolate, and strongly arched, while the third tergite has an oblique furrow from the anterior middle to the lateral margins. The second tergite has a transverse, smooth, slightly raised area at base.

GNAMPTODON NEPTICULAE Rohwer.

Plate 34, fig. 1; plate 35, fig. 13.

Gnamptodon nepticulae ROHWER, Proc. U. S. Nat. Mus., vol. 49, 1915, p. 229.

Habitat.—Virginia.

Host.—*Nepticula castaneae* *foliella*.

Genus OPIUS Wesmael.

The genus is sufficiently characterized in the description of the subfamily and the generic key. As here constituted the genus includes the vast majority of the American species of Opiinae.

Key to the species of *Opius*.

1. Second abscissa of radius shorter or scarcely longer than the first cubital cross vein..... 2.
 Second abscissa of radius longer than the first cubital cross vein..... 11.
2. Mesopleurae striate, the striae arcuately curving from the superior to the posterior margin; abdominal tergites wrinkled..... *secundus* Viereck.
 Mesopleurae not striate; abdominal tergites not all wrinkled..... 3.
3. Dorsum of the mesothorax granularly sculptured; first transverse cubitus nearly obsolete; parapsidal grooves impressed and terminating posteriorly in a striate area; first and second abdominal tergites and basal border of the third striate.
 *appalachicolus* Viereck.
 Dorsum of the mesothorax smooth; first transverse cubitus distinct; parapsidal grooves incomplete and rarely terminating in a striate area; first and second tergites sometimes striate..... 4.
4. Malar space longer than the width of a mandible at base..... 5.
 Malar space shorter than the width of a mandible at base..... 10.
5. Posterior wing with a distinct postnervellus;¹ ovipositor strongly exerted..... 6.
 Posterior wing without a distinct postnervellus; ovipositor short..... 8.

¹ The name postnervellus is applied to a crossvein or stub of a vein, interstitial with the basal nerve in the posterior wing, and extending backward toward the posterior margin of the wing, parallel with the nervellus.

6. Second tergite striate; wings hyaline.....*melleus*, new species.
Second tergite smooth; wings blackish or fuscous..... 7.
7. Clypeus anteriorly produced medially into an obtuse angle; mesopleural impres-
sion smooth.....*craufordi* Viereck.
Clypeus anteriorly truncate or only slightly rounded; mesopleural impression
crenate.....*sanguineus* Ashmead. 9.
8. Mesopleurae with a crenate impression..... 9.
Mesopleural impression smooth.....*kukakense* Ashmead.
also *indotatus* Viereck.
9. First abscissa of radius almost as long as the second and nearly half the length of
the transverse cubitus; parapsidal grooves impressed to the middle of the
mesoscutum.....*politus* Provancher.
- First abscissa of radius not half the length of the second and not more than one-
third the length of the first cubital cross vein; parapsidal grooves effaced except
at the anterior lateral angles of the mesoscutum.....*anthomyiae* Ashmead.
10. Mesopleural impression smooth; postnervellus absent; ovipositor scarcely ex-
serted; color black.....*foveolatus* Ashmead.
Mesopleural impression crenate; postnervellus present; ovipositor longer than the
abdomen; color stramineous.....*ferrugineus*, new species.
11. Eyes small and nearly circular; malar space longer than the width of a mandible;
mesopleural impression strongly crenate; mesoscutum without an impression
medially in front of the scutellum; second tergite striate; ovipositor nearly as
long as the abdomen; length, 4.25 mm.; head, tegulae, legs, and abdomen
beneath pale yellow; rest of body black.....*flaviceps*, new species.
Eyes distinctly oval; malar space shorter than the width of a mandible, or, if
longer, then not combining all of the above characters..... 12.
12. Eyes distinctly diverging below and unusually large; ocell-ocular line hardly
twice as long as the greatest diameter of an ocellus; malar space about half as
long as the width of a mandible; wings fuscous; ovipositor about half the
length of the abdomen; body-color testaceous; head and legs blackish.
vierecki, new species.
Eyes not especially large and not diverging below; ocell-ocular line usually dis-
tinctly more than twice as long as the diameter of an ocellus; if shorter, then
not combining all of the above characters..... 13.
13. Ovipositor as long as the body; posterior orbits about as broad as the diameter of
the eye; clypeus and mandibles hardly separated; mesopleural impression
smooth; mesoscutum without a median impression; antennae inserted about
the middle of the eyes, 47-jointed; hind tibiae, all tarsi, the eyes and ocelli
black; rest of the body pale testaceous.....*brunneitarsis*, new species.
Ovipositor much shorter; otherwise not combining all of the above characters.. 14.
14. Head unusually thick antero-posteriorly, apparently not more than twice as
broad as long as seen from above; posterior orbits broad and only slightly
sloping; broad opening between mandibles and clypeus; mesoscutum without
a median impression; mesopleural impression smooth; ovipositor half as long
as the abdomen; head and thorax black; legs and abdomen testaceous; length
3.5 mm.....*crassiceps*, new species.
Head more transverse, appearing more than twice as broad as long; orbits some-
times broad but usually more sloping; otherwise not combining all of the above
characters..... 15.
15. Second abdominal tergite sculptured; suturiform articulation usually evident. 47.
- Second tergite smooth; suturiform articulation usually obsolete..... 16.
16. Parapsidal grooves complete; antennae ringed with white..... 17.
- Parapsidal grooves incomplete; antennae not ringed with white..... 18.

17. General color reddish yellow; recurrent nervure joining the first cubital cell; antennal joints 16-19 inclusive white *ashmeadi* Dalle Torre.
General color black; recurrent nervure joining the second cubital cell; antennal joints beyond the 14th to the apex white, the two apical joints fuscous.
cincticornis, new species.
18. Mesoscutum with a median dimple-like impression or longitudinal slit in front of the scutellum 19.
Mesoscutum without a median impression 32.
19. Mesopleurae with a crenulate or foveolate impression below the middle 20.
Mesopleural impression smooth or absent 28.
20. Mandibles and clypeus fitting close together, without a distinct opening between 27.
Mandibles and clypeus separated by a distinct opening 21.
21. Median impression on the mesoscutum slit-like, extending to or beyond the middle of the mesoscutum; yellowish species 22.
Median impression on the mesoscutum not extending forward to the middle of the mesoscutum; (blackish species except *anastrephae*) 23.
22. Forewing from its base to apex of stigma fuscous; ovipositor nearly half as long as the abdomen *fuscipennis*, new species.
Forewing not fuscous; ovipositor short *canaliculatus*, new species.
23. Ovipositor nearly half as long as the abdomen; body color uniformly stramineous *anastrephae* Viereck
Ovipositor scarcely exerted; not uniformly stramineous 24.
24. Head, except a spot surrounding the ocelli, yellow; antennae inserted about the middle of the eyes *provancheri* Dalle Torre.
Head blackish; antennae inserted a little above the middle of the eyes 25.
25. General color piceo-succineus, the head above, dorsum of the mesothorax, and apex of abdomen brownish or piceus; length about 2 mm. *succineus* Gahan.
Head and thorax polished black 26.
26. Abdomen except the first tergite yellow *brunneiventris* Cresson.
Abdomen except the second tergite black *cinctus* Provancher.
27. Mandibles with a distinct tooth on the ventral margin near the base.
mandibularis, new species.
Ventral margin of the mandibles without a distinct tooth *utahensis* Gahan.
28. Mandibles with a distinct notch or tooth on the ventral margin near the base.. 29.
Ventral margin of the mandibles without a notch or tooth at base 31.
29. Propodeum not coarsely rugose, more or less shining; stigma long and narrow; median impression on the mesonotum very slight, almost obsolete; first tergite nearly twice as long as broad and distinctly striate; first abscissa of radius rather long *amplus* Ashmead.
Propodeum rather coarsely rugose; stigma subtriangular; median impression on the mesonotum deep and distinct 30.
30. Length 3.5 mm. *basiniger* Viereck.
Length 2.75 mm. *foersteri*, new species.
31. Sides of the thorax and more or less of the dorsum brown or castaneous; tegument surrounding the median impression on the mesoscutum rugulose.
nigrocastaneus Viereck.
Thorax wholly black; mesoscutum wholly smooth *coloradensis*, new species.
32. Recurrent nervure joining the first cubital cell; mesoscutum conspicuously hairy all over 33.
Recurrent nervure interstitial or joining the second cubital cell; mesoscutum not conspicuously hairy 34.

33. Propodeum with a median longitudinal carina; mesopleurae above the crenate impression smooth.....*rufocinctus*, new species.
 Propodeum without a median carina; mesopleurae above the crenate impression distinctly reticulated.....*apicalis*, new species.
34. Mesopleural impression crenate or foveolate 35.
 Mesopleural impression smooth..... 43.
35. Head above, sides of thorax, and propodeum dark castaneous; face yellowish; propodeum nearly smooth; antennae 24-jointed in the male type.
tibialis Ashmead.
 Head differently colored; thorax either wholly black or wholly pale yellow; propodeum usually rugose though not always..... 36.
36. Uniformly pale yellow species..... 42.
 Black species, the head and abdomen sometimes marked with yellowish..... 37.
37. Head with the face and orbits, at least, yellow..... 38.
 Head black or with only the lower part of face yellowish..... 39.
38. Mandibles fitting close to the clypeus; mesopleural impression only slightly rugulose.....*luteiceps* Viereck.
 Mandibles and clypeus separated by a distinct opening; mesopleural impression strongly crenate.....*aberrans* Viereck.
39. Length about two and one-half millimeters; propodeum rugose all over; antennae 29-jointed in the type.....*unifasciatus* Ashmead.
 Length about one and one-half millimeters; propodeum not entirely rugose, more or less shining, and indistinctly sculptured or smooth..... 40.
40. Second abscissa of radius more than twice as long as the first transverse cubitus; propodeum smooth; first tergite nearly smooth and dark red or piceus in color; second tergite piceus.....*montanus* Ashmead.
 Second abscissa of radius distinctly less than twice as long as the first transverse cubitus; propodeum not wholly smooth..... 41.
41. First tergite granularly sculptured and pale yellow; second tergite also pale yellowish.....*dimidiatus* Ashmead.
 First tergite not granularly sculptured, black; second tergite blackish.
tantillus Ashmead.
42. Face practically smooth; recurrent nervure interstitial; antennae in the female type 29-jointed.....*interstitialis* Ashmead.
 Face rugulose; recurrent nervure joining the lower angle of the second cubital cell; antennae in the female type 24-jointed.....*insularis* Ashmead.
43. Mandibles with a distinct notch or tooth on the ventral margin near the base; radial cell short and broad, terminating much before the extreme wing-apex.
chrhorni, new species.
 Mandibles without a tooth or notch on the ventral margin; radial cell terminating only a little above the extreme wing-apex..... 44.
44. Color testaceous or stramineous..... 45.
 Color black..... 46.
45. Propodeum polished, smooth.....*commodus*, new species.
 Propodeum opaque, rugose.....*diastatae* Ashmead.
46. Propodeum and first tergite smooth; mesopleural impression absent or nearly so; legs fuscous, their coxae blackish.....*brunceipes* Gahan.
 Propodeum rugulose laterally and posteriorly; mesopleural impression present but smooth; legs including coxae pale.....*aridis* Gahan.
47. Face granularly rugulose; malar space distinctly longer than the width of a mandible at base.....*salvini* Ashmead.
 Face not granularly rugulose; malar space not distinctly longer than the base of mandible..... 48.

48. Ovipositor about half as long as the abdomen; two diverging furrows on the second tergite prolonged nearly to the suturiform articulation. . . . *melanocephalus* Ashmead. Ovipositor concealed or very short; diverging furrows on the second tergite impressed only at the base of the tergite. . . . 49.
49. Thorax depressed, flattened above, wider between the wings than high dorso-ventrally; coalesced second and third tergites granularly sculptured from base to apex. . . . *striativentris*, new species. Thorax not depressed nor flattened above, not broader between the wings than high; coalesced second and third tergites sculptured before the suturiform articulation and either smooth or sculptured behind. . . . 50.
50. Coalesced second and third tergites sculptured from base to apex, or at least beyond the suturiform articulation; propodeum smooth or very finely rugulose. . . . 51. Coalesced second and third tergites smooth beyond the suturiform articulation; propodeum rugose all over. . . . 53.
51. Propodeum smooth and polished; second tergite black or blackish. . . . *suturalis* Gahan. Propodeum finely rugulose at least laterally and posteriorly; second tergite yellowish. . . . 52.
52. Propodeum opaque, granularly punctate all over; coalesced second and third tergites wholly reddish stramineous, following segments only slightly darker; pleurae and propodeum reddish. . . . *gracillariae*, new species. Propodeum finely punctate laterally and posteriorly, more or less shining above; first tergite blackish; coalesced second and third tergites beyond the suturiform articulation black as are the following tergites; propodeum and pleurae black. . . . *nanus* Provancher.
53. Mandibles with the ventral margin complete; mesopleural impression crenulate. . . . *oscinidis* Ashmead. Mandibles with a deep notch or tooth on the ventral margin near the base; mesopleural impression smooth. . . . *americanus*, new species.

OPIUS SECUNDUS Viereck.

Diachasma secunda VIERECK, Trans. Kansas Acad. Sci., vol. 19, 1905, p. 272.

The type of this species has not been seen by the writer and it may prove not to be an Opiine. The striate mesopleurae and the wrinkled abdominal tergites apparently distinguish it from any other species in our fauna.

Habitat.—Kansas.

Host.—Unknown.

OPIUS APPALACHICOLUS Viereck.

Diachasma appalachicola VIERECK, Trans. Kansas Acad. Sci., vol. 19, 1905, p. 273.

Type in the Snow collection and not examined. Apparently differs from all other species in the granularly sculptured dorsum of the thorax.

Habitat.—Kansas.

Host.—Unknown

OPIUS MELLEUS, new species.

Female.—Length 3 mm. Antennae longer than the body, 43-jointed in the type, the first flagellar joint about equal to the scape; head transverse, the vertex smooth and shining; frons smooth and bare medially but with a few obscure punctures and fine hairs toward the eye margins; eyes broadly elliptical, very slightly narrowed below and wider than the posterior orbits; face below antennae punctate and hairy with a slight median ridge which terminates some distance above the clypeus; clypeus punctate, about twice as wide as long down the middle, fitting close to the mandibles, its anterior margin rounded. Thorax sparsely pubescent, the hairs thickest on the propodeum and mesosternum; mesoscutum polished, trilobed, the parapsidal grooves nearly complete to the median slit-like impression in front of the scutellum; mesopleurae with an impressed crenate area below, otherwise mostly smooth; propodeum irregularly rugose. Wings hyaline; stigma broad, the radius arising from about the middle of stigma and attaining the wing margin above the extreme wing-apex about the length of the second transverse cubitus; first abscissa of cubitus shorter than half the width of stigma, second abscissa about equaling the first transverse cubitus; recurrent nervure interstitial; posterior wing with a distinct postnervellus. Abdomen ovate, a little longer than the thorax; first tergite striate with strong lateral and sublateral carinae; second tergite smooth laterally but with the median area strongly striate from the base to the subobsolete suturiform articulation, third and following tergites smooth; ovipositor exerted the length of the body; eyes, ocelli, flagellum, and ovipositor sheaths black; apical two-thirds of the posterior tibiae, their tarsi, the apical joint of the median and anterior tarsi, and the wing veins and stigma dark brown; remainder of the body reddish stramineous.

Type-locality.—Mount Washington, New Hampshire.

Type.—Cat. No. 19356, U.S.N.M.

Described from one specimen. Ashmead's manuscript name is adopted.

OPIUS CRAWFORDI Viereck.

Diachasma crawfordi VIERECK, Proc. U. S. Nat. Mus., vol. 40, 1911, p. 181.

Diachasma crawfordi KEILIN and PICADO, Bull. Sci. France et Belg., 1913, vol. 47, No. 2, p. 203, pl. 1.

This is a large yellowish species easily distinguished from all others by the characters given in the table of species. There can be no doubt of the synonymy of the Keilin and Picado species with that of Viereck. The figure given by the former establishes the identity beyond question.

Habitat.—Mexico.

Host.—*Anastrepha striata*.

OPIUS SANGUINEUS Ashmead.

Plate 35, figs. 1a, 1b.

Phaeditoma sanguinea ASHMEAD, Proc. U. S. Nat. Mus., 1888, p. 655.*Opius sanguinea* (Ashmead) MARSHALL, Trans. Ent. Soc. Lond., 1891, p. 47.*Phaeditoma sanguinea* ASHMEAD, Insect Life, vol. 5, p. 135.*Habitat*.—District of Columbia and Missouri.*Host*.—*Trypeta electa*.**OPIUS KUKAKENSE** Ashmead.*Desmionotoma kukakense* ASHMEAD, Proc. Wash. Acad. Sci., vol. 4, 1902, p. 251.*Habitat*.—Alaska.*Host*.—Unknown.**OPIUS INDOTATUS** Viereck.*Biosteres indotatus* VIERECK, Trans. Kansas Acad. Sci., vol. 19, 1905, p. 273.

This species has not been recognized and it can not be separated from the foregoing species by the original description.

Habitat.—Kansas.*Host*.—Unknown.**OPIUS POLITUS** Provancher.

Plate 35, fig. 5.

Opius politus PROVANCHER, Nat. Canad., vol. 14, 1883, p. 16.*Opius politus* PROVANCHER, Faun. Canad. Hymenop., 1883, p. 804.*Hedylus politus* PROVANCHER, Add. Faun. Canad. Hymenop., 1888, p. 381.

Very similar to *anthomyiae* but differing in the characters made use of in the table of species.

Habitat.—Canada and New York.*Host*.—Unknown.**OPIUS ANTHOMYIAE** Ashmead.

Plate 35, fig. 6.

Opius anthomyiae ASHMEAD, Proc. U. S. Nat. Mus., 1888, p. 654.*Habitat*.—Michigan.*Host*.—A dipterous leaf-miner in dock.**OPIUS FOVEOLATUS** Ashmead.

Plate 35, fig. 3.

Opius foveolatus ASHMEAD, Proc. U. S. Nat. Mus., 1888, p. 654.

A series of specimens of this species have been reared by the writer at College Park, Maryland, from leaves of *Chenopodium album*, mined by *Pegomyia*, sp.

Habitat.—Maryland and Iowa.*Host*.—*Pegomyia*, sp.

OPIUS FERRUGINEUS, new species.

Female.—Length 2 mm. Antenna longer than the body, 34-jointed in the type, the first joint of the flagellum about equal to the scape, joints toward the apex only a little longer than wide; head transverse; eyes elliptical, very slightly narrowed ventrally, wider than the posterior orbits; vertex and frons polished, very sparsely hairy; face below antennae hairy, with sparse obscure punctures and a distinct median ridge from the antennal line to the clypeus; clypeus short, transverse, its anterior margin somewhat concave, leaving a wide opening between it and the mandibles. Thorax smooth, sparsely hairy, the hairs thickest on the propodeum and mesosternum; mesoscutum trilobed, the parapsidal grooves obsolete on the posterior half, a deep dimple-like fovea medially just in front of the scutellum; scutellum smooth; mesopleurae with a crenulate impression; propodeum rugose. Stigma of the forewing broad and triangular, the radius arising from about the middle; first radial abscissa about one-third as long as the stigma is wide; second abscissa very slightly longer than the first transverse cubitus; radial cell short, terminating above the extreme wing-apex a distance about equal to the combined first and second abscissae of radius; second cubital cell narrowed outwardly; recurrent nervure joining the second cubital cell close to the basal nervure. Abdomen ovate, not longer than the thorax, its first tergite slightly longer than broad, with sublateral carinae from base to apex, the posterior half of the tergite between the carinae rugulose; segments beyond the first smooth; ovipositor exerted about one and one-half times the length of the abdomen. Eyes, spot enclosed by the ocelli, and the flagellum black; scape and pedicel brown; posterior tibiae except basally, all of the posterior tarsi and the terminal joint of the median and anterior tarsi brownish; wing veins and stigma yellowish-brown; ovipositor sheaths blackish; remainder of the body stramineous.

Male.—Antennae thirty-nine jointed in the type; abdomen brownish on the dorsum and not so broad as in the female; otherwise essentially like the female.

Type.—Cat. No. 19357, U.S.N.M.

Described from a female and a male in the United States National Museum, bearing the number 18814, which is an accession number of the Illinois State Laboratory of Natural History. Mr. C. A. Hart, of the latter institution, kindly furnished the following information from their records: "Taken in sweepings along the shores of Lake Geneva, in Wisconsin, August 31, 1892."

OPIUS FLAVICEPS, new species.

Female.—Length 4.25 mm. Head transverse, a little wider than the thorax; face slightly hairy and indistinctly punctate, with a median ridge; clypeus truncate anteriorly, a little more than three times as wide as long down the middle and distinctly separated from the mandibles by a transverse opening; malar space slightly longer than the width of a mandible at base; eyes protruding and nearly circular; occipital carina strongly developed at sides of the head, absent behind the vertex; ocell-ocular line more than three times the diameter of an ocellus; mesoscutum polished, without a median impression posteriorly, the parapsidal grooves effaced except at the extreme anterior lateral angles; scutellum smooth; mesopleural impression broadly ovate and distinctly crenate; propodeum coarsely rugose; wings hyaline, the stigma broadly lanceolate; recurrent nervure joining the second cubital cell some distance below the basal nervure; first radial abscissa shorter than half the width of stigma, second abscissa slightly more than one and one-half times the length of the first transverse cubitus; radial cell long and terminating somewhat above the extreme wing-apex. Abdomen long-ovate, its first tergite not much longer than broad and coarsely longitudinally striate, with strong sublateral carinae originating near the lateral basal angles and curved inward; suturiform articulation evident, second tergite striate, broad lateral margins of the second tergite and the third and following tergites smooth; ovipositor exerted nearly the length of the abdomen. Head except eyes, a spot enclosed by the ocelli, and the apices of mandibles stramineous; scape stramineous; flagellum black; thorax and dorsum of abdomen black, the venter of abdomen yellowish; legs including coxae pale stramineous; wing veins and stigma dark brown.

Type.—Cat. No. 19358, U.S.N.M.

One female specimen labelled Iowa Exp. Sta., Accession Catalog 716. Mr. J. E. Guthrie, of the Iowa Agricultural College, informs me that under the above accession number appears the following data: "Taken at Ames, Ia., by C. P. Gillette, July 4, 1890, sweeping in fields and woods."

OPIUS VIERECKI, new species.

Plate 34, fig. 2.

Female.—Length 4.5 mm. Head transverse, narrow antero-posteriorly, the posterior orbits above narrow and sloping; eyes very large; face smooth with a median ridge from the antennae to the clypeus; clypeus smooth, nearly four times as broad as long down the middle, separated from the mandibles by a broad opening; antennae broken; mesoscutum and scutellum smooth, polished, the parapsidal grooves deeply impressed anteriorly, becoming indistinct on the disk

of the mesoscutum; mesopleurae smooth with an impressed oval area below the middle which is not strongly crenulate; propodeum rugose with a transverse carinate line a short distance from the base and a median longitudinal carina before it to the base; the area behind the transverse carina is rugose medially with a large, shallow, subquadrate pit, smooth within, at each lateral posterior angle; metapleurae smooth with three more or less well defined large pits along the upper margin; stigma of the forewing broad, the radius arising a little before its middle; second abscissa of radius about one and one-half times the length of the first transverse cubitus; first abscissa of radius less than the width of stigma; third abscissa curving slightly into the radial cell and attaining the wing margin only slightly above the extreme wing-apex; abdomen ovate, about as long as the thorax, its first tergite smooth with strong sublateral carinae from base to apex, and a median carina from about the middle to the apex; following tergites polished; ovipositor two-thirds the length of the abdomen. Head black, the clypeus and mandibles tinged with reddish; antennae black; thorax and abdomen dark stramineous; wings fuscous, the veins and stigma nearly black; all coxae and the posterior femorae concolorous with the thorax, rest of the legs dark reddish-brown.

Type-locality.—Cuernavaca, Mexico.

Type.—Cat. No. 19359, U.S.N.M.

Described from one specimen labeled U. S. Dept. Agri., No. 2089. This specimen was sent to the Department of Agriculture by Mr. Koebele along with a lot of (*Diachasma*) *Opius crawfordi* and is possibly a parasite of *Anastrepha striata*.

OPIUS BRUNNEITARSIS, new species.

Female.—Length 5 mm. Head transverse, polished, the face impunctate or nearly so, the clypeus with some large punctures; face with a strong median ridge; posterior orbits nearly as wide as the eyes; mandibles and clypeus hardly separated, the latter about two and one-half times as broad as long down the middle; malar space about equal to the width of a mandible at base; ocell-ocular line more than three times the diameter of an ocellus; thorax smooth and polished, the parapsidal grooves nearly obsolete on the posterior half of the mesoscutum, which is without a median impression in front of the scutellum; mesopleural impression smooth; propodeum rugose laterally, nearly smooth medially; metapleurae smooth; first abdominal tergite slightly longer than broad, rugoso-punctate between the sublateral carinae, nearly smooth along the lateral margins; following tergites smooth; ovipositor about as long as the abdomen. Wings slightly infuscated on the basal half; stigma long and not broad; first abscissa of radius about equal to half the width of stigma, second abscissa one and one-half times the length of the

first tranverse cubitus. Eyes, ocelli, apices of mandibles, and antennae black; wing veins and stigma dark brown; all tarsi and the hind tibiae dark brown; remainder of body reddish stramineous.

Type.—Cat. No. 19360, U.S.N.M.

Described from a single specimen labeled Ames, Iowa, without further data.

OPIUS CRASSICEPS, new species.

Plate 34, fig. 3; plate 35, fig. 2.

Female.—Length 3.5 mm. Head transverse, smooth, more than usually thick antero-posteriorly; posterior orbits broad and only slightly receding, not as broad as the eyes; face impunctate or nearly so, the median ridge very slight and not reaching to the clypeus; eyes short oval; malar space equal to about two-thirds the width of a mandible at base; clypeus about three times as wide as long down the middle, the anterior margin rounded; opening between mandibles and clypeus broad; antennae 43-jointed, the first flagellar joint about three times as long as thick and scarcely longer than the second; ocellular line equal to nearly three times the diameter of an ocellus; thorax smooth; parapsidal grooves effaced except at the lateral anterior angles of the mesoscutum; mesopleurae, smooth without an impression below the middle; propodeum rugose. Forewing with the first radial abscissa equal to about half the width of stigma, the second abscissa more than one and one-half times the length of the first transverse cubitus; recurrent nervure interstitial; second cubical cell much narrower at apex than at base; stigma not broad. First abdominal tergite rugose, the following segments smooth; ovipositor exerted a little less than half the length of the abdomen. Head and thorax black, mandibles rufous with their apices black; scape rufous, flagellum black; sides of prothorax, legs including coxae, and the whole abdomen rufo-stramineous; ovipositor sheaths black; wings hyaline, veins and stigma dark brown.

Type-locality.—Colorado.

Type.—Cat. No. 19361, U.S.N.M.

Two specimens without further data.

OPIUS ASHMEADI Dalle Torre.

Opius annulicornis ASHMEAD, Journ. Linn. Soc. Lond. Zool., vol. 25, 1894, p. 136 (not Thomson).

Opius ashmeadii DALLE TORRE, Catalog. Hymenop., vol. 4, 1898, p. 59.

Habitat.—St. Vincent.

Host.—Unknown.

OPIUS CINCTICORNIS, new species.

Female.—Length 2.3 mm. Head a little more than twice as wide as long antero-posteriorly, smooth except the face, which is faintly wrinkled; face with a sharp median ridge; posterior orbits about

half the width of the eye; ocell-ocular line about three times the diameter of an ocellus; clypeus about twice as broad as long down the middle and separated from the mandibles by a narrow transverse opening; malar space about equal to the width of a mandible at base; antennae 24-jointed in the type, the first flagellar joint about five times as long as thick and distinctly longer than the second; thorax smooth, the parapsidal grooves complete and deeply impressed throughout; mesopleural furrow crenate; propodeum rugose; stigma of the forewing broadly lanceolate; recurrent nervure interstitial; first abscissa of radius equal to about half the width of stigma; second abscissa a little more than one and one-half times the first transverse cubitus; radial cell extending to the extreme apex of wing. First abdominal tergite about one and one-half times as long as broad, broadening from base to apex and finely longitudinally striate; following tergites smooth; ovipositor very slightly exerted. Antennal joints beyond the fourteenth except the two apical ones white, scape testaceous, rest of the antennae brown; mandibles, palpi, and clypeus pale yellowish; face piceus; remainder of the head black; thorax black; legs, including coxae, pale stramineous; wings hyaline, veins and stigma pale brownish; abdomen mostly black, the second tergite stained with yellowish.

Type-locality.—Oswego, New York.

Type.—Cat. No. 19362, U.S.N.M.

Described from one specimen.

OPIUS FUSCIPENNIS, new species.

Female.—Length 3 mm. Head strongly transverse, mostly smooth, the face below antennae sparsely punctate, with a distinct median ridge; clypeus punctate, with the anterior margin nearly straight, about four times as broad as long down the middle and separated from the mandibles by a transverse opening; malar space shorter than the width of a mandible at base; posterior orbits about two-thirds the width of the eye; ocell-ocular line equal to nearly four times the diameter of an ocellus; antennae 38-jointed in the type, inserted a little above the middle of the eyes, the joints unusually short, first flagellar joint a little more than twice as long as broad, those in the middle scarcely longer than thick. Thorax smooth; median impression of the mesoscutum slit like and extending two-thirds its length, parapsidal grooves deep anteriorly, but effaced before joining the median impression; mesopleural impression strongly crenate; propodeum rugose, with a more or less distinct irregular transverse raised line before the middle; first abscissa of radius equal to about two-thirds the width of stigma, which is broad; second abscissa of radius about one and one-third times the length of the first transverse cubitus; radial cell terminating somewhat

above the extreme wing apex. Abdomen ovate; first tergite a little longer than broad and scarcely narrowed at base, with distinct sublateral carina and a slight median carina on the posterior half, the space between the sublateral carina elevated and rugose, the lateral margins of segment nearly smooth; tergites beyond the first smooth; ovipositor one-third the length of the abdomen. General color reddish stramineous; eyes, ocelli, antennae except scape, and ovipositor sheaths black; scape, apices of mandibles, and apical joint of all tarsi brownish; wings to or a little beyond the apex of stigma fuscous, hyaline at apex.

Male.—Essentially like the female.

Type-locality.—Carlinville, Illinois.

Type.—Cat. No. 19363 U.S.N.M.

The allotype is labeled Champaign, Illinois, and a paratype female Roslyn, Virginia. Host unknown. Ashmead's manuscript name is applied to the species. The type was collected by Chas. Robertson.

OPIUS CANALICULATUS, new species.

Female.—Length, 2.5 mm. Head strongly transverse, mostly smooth; frons faintly punctate laterally and the face more distinctly so, the latter with a strong median ridge; clypeus nearly four times as broad as long down the middle, with rather coarse sparse punctures, its anterior margin straight and separated from the mandibles by a rather broad opening; malar space equal to about two-thirds the width of a mandible at base; posterior orbits half the width of the eyes and distinctly receding; ocellular line about three times the diameter of an ocellus; antennae inserted slightly above the middle of the eyes, 32-jointed in the type, the first flagellar joint about twice as long as thick, following joints shortening gradually; mesoscutum smooth, the median impression slitlike and extending forward to the middle of the mesoscutum, parapsidal grooves deeply impressed anteriorly but effaced on the posterior two-thirds; mesopleural impression deeply crenulate; propodeum rugose with a transverse irregular raised line or carina near the base; stigma of the forewing broad; first abscissa of radius equal to about half the width of stigma; second abscissa equal to about one and one-half times the first transverse cubitus; radial cell terminating slightly above the extreme wing apex; abdomen short, ovate; first tergite slightly longer than broad and a little wider at apex than at base, with a median carina on the apical half and with sublateral carinae, the space between the sublateral carinae elevated and rugulose, laterad of these carinae smooth; following tergites smooth; ovipositor slightly exerted. Eyes, antennae, most of the pro- and mesopleurae and the propodeum black; head, dorsum of the thorax, the first tergite, and the legs reddish testaceous;

tergites beyond the first paler; ovipositor sheaths black; wings hyaline.

Type-locality.—College Park, Maryland.

Type.—Cat. No. 19364 U.S.N.M.

One specimen, collected by the writer, July 11, 1911. Very similar to *fuscipennis* except for the hyaline wings.

OPIUS ANASTREPHAE Viereck.

Plate 35, fig. 4.

Opius (Uletes) anastrephae VIERECK, Proc. U. S. Nat. Mus., vol. 44, 1913, p. 563.

Habitat.—Porto Rico.

Host.—*Anastrepha*, sp.

OPIUS PROVANCHERI Dalle Torre.

Opius ruficeps PROVANCHER, Add. Faun. Can. Hym., 1886, p. 124 (not Wesmael).

Opius provancheri DALLE TORRE, Cat Hym., vol. 4, 1898, p. 64.

Habitat.—Canada and New York.

Host.—Unknown.

OPIUS SUCCINEUS Gahan.

Opius succineus GAHAN, Can. Ent., vol. 45, 1913, p. 149; Journ. Agri. Research, U. S. Dept. of Agr., vol. 2, 1914, pl. 4, fig. 3.

Habitat.—Indiana and Illinois.

Host.—*Agromyza parvicornis*.

OPIUS BRUNNEIVENTRIS Cresson.

Opius brunneiventris CRESSON, Trans Amer. Ent. Soc., vol. 4, 1872, p. 178.

? *Opius brunneiventris* (Cresson) PROVANCHER, Add. Faun. Can. Hym., 1888, p. 382.

Habitat.—Texas and ? Canada.

Host.—Unknown.

OPIUS CINCTUS Provancher.

Opius cinctus PROVANCHER, Add. Faun. Can. Hym., 1886, p. 124; 1888, p. 381.

Habitat.—Canada.

Host.—Unknown.

OPIUS MANDIBULARIS, new species.

Plate 34, figs. 4a, 4b; plate 35, fig. 9.

Female.—Length 2 mm. Head and thorax polished; head transverse, the face sparsely punctate with a median ridge; malar space less than the width of a mandible at base; clypeus with the anterior margin slightly rounded, about two and one-half times as broad as long down the middle and separated from the mandibles by only a

very narrow transverse opening, if at all; mandible with a distinct tooth or notch on the ventral margin near the base; antennae 29-jointed in the type, inserted a little above the middle of the eyes, the first flagellar joint two and one-half times as long as thick; ocellular line about $2\frac{1}{2}$ times as long as the diameter of an ocellus; width of the posterior orbit about half that of the eye; mesoscutum with the parapsidal grooves impressed anteriorly for a short distance only; mesopleural impression deep and slightly crenulate; propodeum rugose. Stigma of the forewing narrow, lanceolate, with the radius arising distinctly before its middle; first abscissa of radius equal to about half the width of stigma; second abscissa more than one and one-half times the length of the first transverse cubitus. Abdomen ovate, its first tergite about as long as broad at apex and fully twice as broad at apex as at base; irregularly striate; following tergites smooth; ovipositor hardly exerted. Head, thorax, and first abdominal tergite black; antennal flagellum black; scape, pedicel, clypeus, mandibles, palpi, legs including coxae, and the tegulae pale stramineous; second tergite concolorous with the legs, the following tergites blackish or brownish; wings hyaline, the nervures and stigma dark brown; apical one-third of the hind tibiae and their tarsi as well as the apices of the middle and anterior tarsi brown.

Male.—Differs from the female only in the usual sexual characters.

Type-locality.—Washington, District of Columbia.

Type.—Cat. No. 19365, U.S.N.M.

Nine specimens labeled "Ex. Agromyzid in leaves of Chrysanthemum, Sept. 7, 1913, Mary Faunce collector."

OPIUS UTAHENSIS Gahan.

Opius utahensis GAHAN, Can. Ent., vol. 45, 1913, p. 145; Journ. Agri. Research, U. S. Dept. of Agr., vol. 2, 1913, p. 29, pl. 5, fig. 2.

Habitat.—Utah.

Host.—*Agromyza parvicornis*.

OPIUS AMPLUS Ashmead.

Aclura ampla ASHMEAD, Bull. Colo. Biol. Assoc., vol. 1, 1890, p. 19.

Habitat.—Colorado.

Host.—Unknown.

OPIUS BASINIGER Viereck.

Opius basiniger VIERECK, Trans. Kans. Acad. Sci., vol. 19, 1905, p. 270.

The type of this species is in the Snow collection and has not been examined.

Habitat.—Kansas.

Host.—Unknown.

OPIUS FOERSTERI, new species.

Plate 35, fig. 7.

Opius mellipes (Provancher) ASHMEAD, in *Insect Life*, vol. 3, p. 59.

Female.—Length 2.75 mm. Head polished above, the face with setigerous punctures and a distinct median elevation; clypeus truncate anteriorly, more than three times as broad as long down the middle, with some large punctures; mandibles fitting close to the clypeus and with a distinct tooth on the ventral margin near the base; malar space shorter than the width of a mandible at base; posterior orbit slightly narrower than the width of an eye and rounded off behind; antennae broken but showing at least thirty joints in the type; thorax polished; parapsidal grooves effaced except for a short distance anteriorly; propodeum rugose; mesopleural impression smooth; wings hyaline; first radial abscissa short, the second much longer than the first transverse cubitus; radial cell terminating above the extreme wing apex. First abdominal tergite slightly longer than broad at apex and rugose; following tergites smooth; ovipositor barely exerted. Black; clypeus, mandibles, palpi, scape, pedicel, tegulae, legs, and abdomen, except the first tergite, which is black, pale testaceous; wing veins and stigma brownish testaceous.

Male.—Similar in all respects to the female.

Type-locality.—Kirkwood, Missouri.

Type.—Cat. No. 19366, U.S.N.M.

The female is described from a specimen reared by Miss Murtfeldt, September 25, 1881, and supposedly parasitic on *Eulia triferana* (= *Lophoderus incertana*). Ashmead determined this parasite as *Opius mellipes* Provancher and recorded the rearing as cited above. The allotype is a specimen from the Ashmead collection, the origin of which is unknown.

OPIUS NIGROCASTANEUS Viereck.

Opius nigrocastaneus VIERECK, *Trans. Kans. Acad. Sci.*, vol. 19, 1905, p. 272.

Type in the Snow collection. The species is unknown to the writer.

Habitat.—Kansas.

Host.—Unknown.

OPIUS COLORADENSIS, new species.

Female.—Length, about 3 mm. Head transverse, smooth, polished; face with distinct sparse punctures and a prominent median ridge; clypeus coarsely punctate basally, truncate anteriorly, and about four times as wide as long down the middle; mandibles with the ventral margin complete, only slightly separated from the clypeus by a narrow transverse opening; malar space shorter than the width of a mandible at base; posterior orbits about two-thirds the width

of the eyes; ocell-ocular line fully three times the greatest diameter of an ocellus; thorax smooth and polished; propodeum rugose; stigma of the forewing moderately broad and long; first abscissa of radius about equal to half the width of stigma; second abscissa nearly twice as long as the first transverse cubitus; recurrent nervure interstitial or nearly so; first abdominal tergite rugoso-striate, broader at apex than at base, without distinct sublateral carinae, but with a sharp carina originating at each basal lateral angle and meeting on the median line before the middle of the tergite; remaining tergites smooth; ovipositor hardly extending beyond the apex of abdomen. Head and thorax black; scape, mandibles, tegulae, legs including coxae, and the venter and sides of abdomen bright reddish stramineous; dorsum of abdomen reddish brown, the first tergite black; wings hyaline, the stigma yellowish, veins brownish.

Type-locality.—Colorado Springs, Colorado.

Type.—Cat. No. 19367, U.S.N.M.

One specimen collected in August by E. S. Tucker at 5,915 feet elevation.

OPIUS RUFOCINCTUS, new species.

Allotypus rufocinctus ASHMEAD, MS. in Ent. News, vol 16, 1905, p. 297.

Female.—Length 2.2 mm. Head strongly transverse; antennae broken in the type, the first flagellar joint about three times as long as thick; head above impunctate, the frons and vertex distinctly hairy laterally; face closely punctate and covered with long hairs; clypeus rounded on the anterior margin fitting close to the mandibles and scarcely twice as broad as long down the middle; ocell-ocular line about three times the diameter of an ocellus; posterior orbits much narrower than the eye; malar space not equal to the width of a mandible at base; mesoscutum faintly punctate and distinctly hairy, the parapsidal grooves almost wholly effaced; mesopleurae smooth except the impression which is ovate and crenulate; propodeum rugose with a distinct median carina; forewing considerably longer than the whole body, broad; radius arising from about the basal one-third of stigma which is not broad; first abscissa of radius shorter than half the width of stigma; second abscissa about one and two-thirds times the first transverse cubitus; second cubital cell narrowed toward the apex; recurrent nervure joining the first cubital cell about the length of the first abscissa of radius before the basal nervure; abdomen short, oval, not as long as the thorax, the apical segments retracted; first tergite striate, narrower at base than at apex, and a little longer than broad; following tergites smooth; ovipositor scarcely reaching beyond the apex of abdomen. Black; scape, pedicel, mandibles, except apices, palpi, clypeus, and all legs including coxae pale honey-yellow; flagellum brownish black; tips of mandibles and tarsal claws brown; apical one-third of hind tibiae

and their tarsi slightly fuscous; second abdominal tergite on basal half honey-yellow; ovipositor sheaths black.

Type locality.—Algonquin, Illinois.

Type.—Cat. No. 19368, U.S.N.M.

One specimen. Ashmead's manuscript name is adopted.

OPIUS APICALIS, new species.

Plate 35, fig. 8.

Female.—Length 2 mm. This species is exactly similar to the foregoing except in the following details: The propodeum is without a median carina; the mesopleura above the crenate impression is not smooth but faintly coriaceous; the first abdominal tergite is not black but reddish and the apical segments are sometimes mostly honey-yellow like the base of the second; antennae 33-jointed in the type.

Male.—Like the female except in the usual sexual characters.

Type locality.—Colorado.

Type.—Cat. No. 19369, U.S.N.M.

Four specimens without further data. This may prove to be but a variety of *rufocinctus*. Ashmead's manuscript name is adopted.

OPIUS TIBIALIS Ashmead.

Adelura tibialis ASHMEAD, Can. Ent., vol. 25, 1893, p. 79.

Male.—Head transverse polished, the face practically impunctate; eyes rather small, ovate, wider than the posterior orbits which are slightly narrower above than below; clypeus small, the anterior margin distinctly convex, about twice as broad as long, and separated from the mandibles by a transverse opening; malar space apparently about as long as the width of a mandible at base; first flagellar joint a trifle more than three times as long as thick; mesoscutum without a median impression posteriorly, the parapsidal grooves faintly indicated on the anterior half; mesopleural impression faintly crenulate; propodeum nearly smooth; first tergite rugulose, wider at apex than at base, and distinctly longer than wide; following tergites smooth.

Notes from the type. For additional details see the original description.

Habitat.—West Virginia.

Host.—Unknown.

OPIUS LUTEICEPS Viereck.

Opius luteiceps VIERECK, Trans. Kans. Acad. Sci., vol. 19, 1905, p. 271.

The species has not been recognized. The original description agrees well with *provancheri* but in that species there is a large fusiform median impression on the posterior half of the mesonotum which is apparently absent in *luteiceps*.

Habitat.—Kansas.

Host.—Unknown.

OPIUS ABERRANS Viereck.

Opius aberrans VIERECK, Trans. Kans. Acad. Sci., vol. 19, 1905, p. 271.

The type of this species has not been examined. A specimen from Onaga, Kansas, which agrees with the description is in the United States National Museum and the characters used in the table of species are taken from this specimen.

Habitat.—Kansas.

Host.—Unknown.

OPIUS UNIFASCIATUS Ashmead.

Opius unifasciatus ASHMEAD, Journ. Linn. Soc. Zool., vol. 25, 1894, p. 135.

Habitat.—St. Vincent.

Host.—Unknown.

OPIUS MONTANUS Ashmead.

Adelura montana ASHMEAD, Bull. Colo. Biol. Assoc., vol. 1, 1890, p. 19.

This species apparently differs from *dimidiatus* only in the following details: The propodeum is smooth and the first tergite is not granularly rugose but practically smooth; the legs and the first and second tergites are dark reddish instead of pale straw-colored; the second abscissa of radius is more than twice as long as the first transverse cubitus while in *dimidiata* it is distinctly less than twice as long. Notes from the type.

Habitat.—Colorado.

Host.—Unknown.

OPIUS DIMIDIATUS Ashmead.

Plate 35, fig. 11.

Adelura dimidiata ASHMEAD, Proc. U. S. Nat. Mus., vol. 11, 1888, p. 647.

Eutrichopsis agromyzae VIERECK, Proc. U. S. Nat. Mus., vol. 42, 1912, p. 622.

Opius (Eutrichopsis) agromyzae (Viereck) GAHAN, Can. Ent., vol. 45, 1913, p. 148.

Ashmead's type is identical in every respect with those of Viereck. The species is a common parasite of *Agromyza pusilla*, and it is altogether likely that the "Dipterous larva in a stem of cabbage" given by Ashmead as the host was this *Agromyzid*, as this fly has been reared from cabbage leaves by the writer at College Park, Maryland. The species can only be separated from *aridus* and *brunceipes* by the characters used in the key.

Habitat.—Maryland, Ohio, Indiana, South Dakota, Utah.

OPIUS TANTILLUS Ashmead.

Opius tantillus ASHMEAD, Trans. Ent. Soc. Lond., 1900, p. 294.

Habitat.—Grenada.

Host.—Unknown.

OPIUS INTERSTITIALIS Ashmead.

Opius interstitialis ASHMEAD, Journ. Linn. Soc. Lond. Zool., vol. 25, 1894, p. 135.

Habitat.—St. Vincent.

Host.—Unknown.

OPIUS INSULARIS Ashmead.

Opius insularis ASHMEAD, Journ. Linn. Soc. Lond. Zool., vol. 25, 1894, p. 135.

Habitat.—St. Vincent.

Host.—Unknown.

OPIUS EHRHORNII, new species.

Female.—Length about 2 mm. Head transverse, polished, the face shining with faint setigerous punctures; clypeus fully three times as broad as long down the middle, its anterior margin straight and separated from the mandibles by a very narrow transverse opening; malar space very short, not equal to more than half the width of a mandible at base; posterior orbits a little narrower than the width of the eyes; ocell-ocular line at least three times as long as the diameter of an ocellus; mandibles with a distinct notch on the ventral margin near the base; antennae inserted a little above the middle of the eyes, 23-jointed, the first flagellar joint slightly more than twice as long as thick, following joints subequal and a little less than twice as long as thick; face with a median ridge; thorax polished; parapsidal grooves absent except at the anterior lateral angles of the mesoscutum, the mesoscutum without a median impression; mesopleurae smooth, with a shallow smooth impression below the middle; propodeum rugose; stigma of the forewing moderately broad; first abscissa of radius equal to about half the width of stigma, arising much before the middle of stigma; second radial abscissa nearly twice the length of the first cubital crossvein; third abscissa about equal to the second abscissa and the second cubital crossvein combined, attaining the wing margin far above the extreme wing-apex; recurrent nervure joining the inner angle of the second cubital cell. Abdomen ovate, about as long as the thorax, its first tergite rugose, slightly longer than broad and a little wider at apex than at base; following tergites smooth; ovipositor very slightly exerted. General color black; mandibles, except apices, and the clypeus rugose; antennal scape piceus, flagellum black; legs including all coxae reddish testaceous; wings hyaline, the veins and stigma pale brownish; tegulae testaceous; abdomen beyond the first tergite reddish testaceous, more or less mixed with blackish.

Type-locality.—Mountain View, California.

Type.—Cat. No. 19370, U.S.N.M.

Host.—Unknown.

One specimen bearing the above locality label and a second label as follows: "Ehrhorn, Lot 2."

OPIUS COMMODUS, new species.

Male.—Length 1.5 to 1.75 mm. Head transverse, smooth; face practically impunctate; malar space shorter than the width of mandible; rather broad opening between mandibles and clypeus; posterior orbits rounded, about half the width of eye; ocell-ocular line

about three times as long as the diameter of an ocellus; antennae 27-jointed in the type, the first flagellar joint more than three times as long as thick; antennae inserted above the middle of the eyes. Thorax smooth, the parapsidal grooves very short; propodeum smooth, polished; stigma of the forewing moderately broad, the radius arising before its middle; second abscissa of radius one-third longer than the first transverse cubitus; third abscissa of radius twice as long as the second and attaining the wing margin very slightly above the extreme wing apex; recurrent nervure joining the second cubital cell. First abdominal tergite rugose, following tergites smooth. Body color reddish stramineous; eyes black; flagellum blackish; wing veins and stigma brownish.

Type-locality.—St. Vincent Island, West Indies.

Type.—Cat. No. 19371, U.S.N.M.

Six male specimens collected by H. H. Smith. The species is like *interstitialis* Ashmead except for the smooth propodeum, non-foveolated mesopleural impression and the noninterstitial recurrent nervure.

OPIUS DIASTATAE Ashmead.

Bracon diastatae ASHMEAD, Proc. U. S. Nat. Mus., 1888, vol. 11, p. 617.

Opius diastatae (Ashmead) GAHAN, Can. Ent., vol. 45, 1913, p. 150—(Ashmead)

PHILLIPS, Journ. Agri. Res. U. S. Dept. Agri., vol. 2, p. 29, pl. 4, fig. 2.

Habitat.—Florida, Alabama, and Indiana.

Host.—*Agromyza parvicornis*.

OPIUS BRUNEIPES Gahan.

Opius bruneipes GAHAN, Can. Ent., vol. 45, 1913, p. 148.

Habitat.—Florida and Maryland.

Host.—*Agromyza pusilla*.

OPIUS ARIDIS Gahan.

Opius aridis GAHAN, Can. Ent., vol. 45, 1913, p. 147.

Habitat.—Arizona.

Host.—*Agromyza pusilla*.

OPIUS SALVINI Ashmead.

Opius salvini ASHMEAD, Journ. Linn. Soc. Lond. Zool., vol. 25, 1894, p. 134.

Habitat.—St. Vincent.

Host.—Unknown.

OPIUS MELANOCEPHALUS Ashmead.

Opius melanocephalus ASHMEAD, Journ. Linn. Soc. Lond. Zool., vol. 25, 1894, p. 134.

Habitat.—St. Vincent.

Host.—Unknown.

OPIUS STRIATIVENTRIS, new species.

Plate 35, fig. 12.

Female.—Length 1.5 mm. Head strongly transverse and polished, the face practically impunctate and with only a very slight median ridge; malar space hardly half as long as the width of a mandible at base; clypeus about twice as broad as long down the middle; eyes large and converging slightly below; a broad opening between mandibles and clypeus, the former small and just crossing at the tips; ocell-ocular line equal to about twice the diameter of an ocellus; posterior orbits receding and about half as wide as the eyes; antennae 22-jointed in the type, the first flagellar joint about four times as long as thick. Thorax distinctly broader between the wings than high (dorso-ventrally), the mesonotum flattened, smooth, the parapsidal grooves indicated only anteriorly; mesopleurae smooth with an impression below which is faintly rugulose within; propodeum granularly rugose; stigma of the forewing lanceolate, emitting the radius near the basal one-third; first abscissa of radius shorter than the width of stigma, second abscissa about one and one-half times the first transverse cubitus, third abscissa fully two and one-half times the second and attaining the wing margin very slightly above the extreme wing apex. First abdominal tergite granularly rugulose, a little longer than broad and wider at apex than at base; second and third tergites granularly rugulose, the suturiform articulation deep and distinct except toward the lateral margins; fourth tergite finely striate; following tergites smooth; ovipositor projecting only slightly beyond the apex of abdomen. General color reddish stramineous; eyes black; spot surrounded by the ocelli, mesoscutum, and scutellum piceus; antennal flagellum dark brown; hind tibiae and their tarsi fuscous; wings hyaline, the stigma and veins brownish.

Male.—Antennae 23-jointed in the type. Otherwise as in the female.

Type-locality.—United States.

Type.—Cat. No. 19372, U.S.N.M.

One female and two male specimens in the National Museum from the Ashmead collection. The origin of these specimens is unknown.

OPIUS SUTURALIS Gahan.

Opius suturalis GAHAN, Can. Ent., vol. 45, 1913, p. 146.

Since the original description of this species which was from a male, a female has been received from Holtville, California, bred by V. L. Wildermuth under Webster No. 6158. This female agrees with the description of the male except that the rugulose sculpture on the second tergite extends almost to the apex of the segment. The ovipositor scarcely extends beyond the apex of the abdomen.

Habitat.—Arizona and California.

Host.—*Agromyza pusilla*.

OPIUS GRACILLARIAE, new species.

Bracon gracillariae ASHMEAD, MS, Insect Life, vol. 2, 1890, p. 349.

Female.—Length 1.3 mm. Head transverse, smooth and polished, the face nearly smooth and without a distinct median ridge; clypeus about twice as broad as long and separated from the mandibles by an elliptical opening; posterior orbits about half the width of the eyes and receding; malar space shorter than the width of a mandible at base; antennae broken, inserted slightly above the middle of the eyes, the first flagellar joint nearly four times as long as thick; mesoscutum smooth, the parapsidal grooves absent except at the anterior angles, without a median impression; mesopleurae smooth, the impression below the middle faintly crenulate; propodeum rugose; wing-stigma moderately narrow, emitting the radius at the basal one-third; first radial abscissa about half as long as the width of stigma; second abscissa about twice the length of the first cubital crossvein; third abscissa twice the length of the combined first and second abscissae, slightly curved into the radial cell and attaining the wing margin only a trifle above the extreme wing-apex. First, second, and third abdominal tergites granularly rugulose, the suturiform articulation distinct; second tergite longer than the third; following tergites smooth; ovipositor barely exerted. Head and thorax piceus; mandibles, palpi, scape, clypeus, legs including coxae, tegulae, metapleurae, most of the propodeum, and the first and second abdominal tergites pale stramineous; antennal flagellum dark brown, the basal joints slightly paler; apex of abdomen blackish; wings hyaline, the veins and stigma brownish yellow.

Type-locality.—Kirkwood, Missouri.

Type.—Cat. No. 19373, U.S.N.M.

Described from one specimen. The reference above cited states that the specimen was reared by Miss Murtfeldt from *Gracillaria desmodiella*. This record needs to be verified.

OPIUS NANUS Provancher.

Opius nanus PROVANCHER, Add. Faun. Can. Hym., 1888, p. 382.

The type of this species is from California and is very similar to *gracillariae* but may be distinguished by the characters used in the key.

Habitat.—California.

Host.—Unknown.

OPIUS OSCINIDIS Ashmead.

Plate 35, fig. 10.

Rhyssalus oscinidis ASHMEAD, Proc. U. S. Nat. Mus., 1888, vol. 11, p. 630.

Eutrichopsis oscinidis (Ashmead) VIERECK, Proc. U. S. Nat. Mus., vol. 44, 1913, p. 559.

Habitat.—District of Columbia and Indiana.

Host.—Dipterous leaf miner in *Plantago*.

OPIUS AMERICANUS, new species.

Male.—Length 2 mm. Head transverse, smooth, the face with a median ridge and nearly impunctate; clypeus about twice as broad as long, slightly rounded on the anterior margin and fitting close to the mandibles; mandibles with a distinct tooth on the ventral margin near the base; malar space a little shorter than the width of a mandible at base; eyes wider than the posterior orbits which are only slightly receding; ocellocular line about equal to twice the diameter of an ocellus; antennae inserted above the middle of the eyes, 27-jointed, the first flagellar joint nearly four times as long as thick. Thorax smooth; mesoscutum nearly devoid of pubescence, the parapsidal grooves absent except at the anterior angles where they are deeply impressed, median impression absent; mesopleurae smooth, with a smooth impression below the middle; propodeum rugose with an indication of a median carina basally; wings hyaline; the stigma lanceolate, emitting the radius distinctly before the middle; first radial abscissa equal to about half the width of stigma; second abscissa twice as long as the first transverse cubitus; third abscissa about one and one-half times the combined length of the first and second abscissae; recurrent nervure joining the second cubital cell; abdomen not longer than the thorax, ovate; first tergite rugose, considerably longer than wide at apex, and wider at apex than at base; suturiform articulation distinct, the surface before the fold, except a narrow lateral margin, rugose; beyond the fold to the apex of abdomen smooth and polished. General color black; scape, pedicel, mandibles, except at apex, palpi, tegulae, and legs, including all coxae, pale stramineous; face with a faint castaneous tinge; antennal flagellum brownish-black; wing veins and stigma brown, the veins at base of wing stramineous.

Type.—Cat. No. 19374, U.S.N.M.

Described from a single specimen in the United States National Museum bearing Illinois accession number 17216. Mr. C. A. Hart informs me that this number refers to the following data: Collected by C. A. Hart while ascending a lonely road through a forest leading up Bald Knob, one of the Ozark hills in southern Illinois.

NORTH AMERICAN SPECIES UNKNOWN TO THE WRITER.

OPIUS ATRICEPS Ashmead.

Opius atriceps ASHMEAD, Journ. Linn. Soc. Lond. Zool., vol. 25, 1894, p. 136.

The paratype specimen of this species in the United States National Museum, is imperfect, the wings having been lost. It appears to be a *Microbracon*. Owing to the doubtful identity of this specimen and

the further fact that the type may be a different species the status of this species must remain in doubt until the type can be examined.

Habitat.—St. Vincent.

Host.—Unknown.

OPIUS GRENADENSIS Ashmead.

Opius grenadensis ASHMEAD, Trans. Ent. Soc. Lond., 1900, p. 294.

Apparently not represented in the United States National Museum.

Habitat.—Grenada.

Host.—Unknown.

OPIUS FORTICORNIS Cameron.

Opius forticornis CAMERON, Invert. Pacif., vol. 1, 1904, p. 51.

Habitat.—Nicaragua.

Host.—Unknown.

OPIUS IRRIDIPENNIS Cameron.

Opius irridipennis CAMERON, Invert. Pacif., vol. 1, 1904, p. 51.

Habitat.—Nicaragua.

Host.—Unknown.

SPECIES WRONGLY CLASSIFIED AS OPIINAE.

The following species, described as Opiines, have been found to belong in other groups.

Family BRACONIDAE.

Subfamily RHOGADINAE.

ONCOPHANES ATRICAUDUS Ashmead.

Gnamptodon atricaudus ASHMEAD, Journ. Linn. Soc. Lond. Zool., vol. 25, 1894, p. 133.

As represented by the paratype in the United States National Museum, this species is not an Opiinae. It runs to the genus *Oncophanes* in Szepligeti's classification of the Braconidae.

Subfamily EXOTHECINAE.

PHANOMERIS MELLIPES Provancher.

Opius pallipes PROVANCHER, Natur. Canad., vol. 12, 1880, p. 164; vol. 15, 1883, p. 16; Faun. entom. Canad. Hymen., 1883, pp. 511 and 804, fig. 55.

Opius mellipes PROVANCHER, Add. Faun. Canad. Hymen., 1886, p. 123; 1888, p. 381.

This species apparently resembles *P. dimidiatus* Nees as described by Marshall.¹ The first abdominal tergite is without a distinct median longitudinal carina and the ovipositor is apparently longer than in *dimidiatus*. No other representatives of the genus *Phanomeris* are recorded from North America so far as known.

¹ Spec. Hymenop. Eur., vol. 4, 1888, p. 174, pl. 7, fig. 2.

Subfamily BRACONINAE.

MICROBRACON DORSATOR Say.

Opius variabilis PROVANCHER, Add. Faun. Canad. Hymen., 1888, p. 382.

MICROBRACON CANADENSIS Ashmead.

Opius canadensis ASHMEAD, Can. Ent., vol. 23, 1891, p. 4.

MICROBRACON REJECTUS Ashmead.

Opius rejectus ASHMEAD, Journ. Linn. Soc. Lond. Zool., vol. 25, 1894, p. 136.

The original description of this species states that the antennae of the female are 27-jointed and those of the male 21-jointed. The males of Opiinae usually have more joints in the antennae than the females or at least as many. The number of joints is variable in both sexes but rarely if ever to the extent indicated, at least in species having less than thirty joints. It seems certain that Ashmead has confused two species in this description. The male type in the United States National Museum is not an Opiinae but a Microbracon. The female is in London and may be an *Opius*. Since the male symbol is placed before that of the female in the original description, the writer has chosen the male specimen as the type of the species and transferred the name *rejectus* to *Microbracon*. In the United States National Museum are specimens of an *Opius* agreeing with Ashmead's description and these have been described in the foregoing pages under the name of *Opius commodus*. The specimen in the British Museum possibly should be referred to this species.

MICROBRACON NIGER Provancher.

Opius niger PROVANCHER, Add. Faun. Canad. Hymen., 1888, p. 381.

This species seems not to be referable to any of the known species of *Microbracon*. The following descriptive notes are from the type, a female, and will supplement Provancher's description: Head above smooth, polished; face very finely punctate with a sharp median ridge from just below the antennae to the clypeus; triangular area before the ocelli and above the antennae very finely punctate; first joint of the flagellum about as long as the scape; thorax smooth and polished, the parapsidal grooves complete but not deeply impressed; propodeum mostly smooth and polished with a very short median longitudinal carina at the apex, the apical third of the propodeum more or less aciculate-punctate, the aciculations most pronounced each side of the carina; abdomen with the tergites irregularly wrinkled and shining, the ovipositor exerted about the length of the abdomen.

ALLOBRACON, new genus.

Plate 34, figs. 5a, 5b.

Head transverse, smooth; eyes very large, protruding, very slightly emarginate opposite the antennae, the fascets rather coarse and elevated; malar space distinct, a little shorter than the width of a mandible at base; face about as wide as the transverse diameter of an eye; posterior orbits very narrow, rounded; ocell-ocular line hardly twice the greatest diameter of an ocellus; antennae slender, 26-jointed, the joints of flagellum subequal or shortening very slightly toward the apex and about three times as long as thick; pedicel about equal to the scape; parapsidal grooves nearly effaced, mesonotum faintly rugulose, scutellum smooth; mesopleurae smooth; propodeum smooth, with a distinct median carina and not sloping posteriorly, its apex nearly on a level with its base; wings hyaline, the stigma moderately broad, the radius originating before the middle of stigma; first abscissa of radius nearly equal to the width of stigma, second abscissa a little longer than the first transverse cubitus; recurrent nervure interstitial; median crossvein a trifle beyond the basal nervure; abdomen a little longer than the thorax, lanceolate, its first tergite twice as wide at apex as at base, rugulose but with a semicircular, slightly depressed, flattened, smooth area at apex which is bounded by a faint carinate line from one posterior lateral angle to the other; following tergites faintly wrinkled; ovipositor about half as long as the abdomen. Legs long and slender, the basal joint of posterior tarsi as long as the four following joints together.

This genus is apparently related to *Megalomum* Szeplegeti, but differs in having a distinct malar space. From *Curriea* Ashmead it differs in the less emarginate eyes, longer malar space, peculiar first tergite, and the immaculate wings.

Type of the genus.—*Diachasma pilosipes* Ashmead.¹

Subfamily ICHNEUTINAE.**ICHNEUTES BICARINATUS** Ashmead.

Opius bicarinatus ASHMEAD, Can. Ent., vol. 23, 1891, p. 4.

¹ Journ. Linn. Soc. Lond. Zool., vol. 25, 1894, p. 137.

EXPLANATION OF PLATES.

The drawings on Plate 34 are by Mr. W. R. Walton of the Bureau of Entomology. The wing figures on Plate 35 are from photographs by the writer. These photographs are not all on exactly the same scale. They are intended primarily to illustrate differences in wing venation.

PLATE 34.

Fig. 1. *Gnamptodon nepticulae*. Dorsal view of the abdomen.

2. *Opius vierecki*. Front view of the head.

3. *Opius crassiceps*. View of the head from above.

4. *Opius mandibularis*. (a) Front view of the head. (b) Left mandible.

5. *Allobracon pilosipes*. (a) Front view of the head. (b) Dorsal view of the first abdominal segment.

PLATE 35.

Fig. 1. *Opius sanguineus*. (a) Anterior wing. (b) Posterior wing.

2. *Opius crassiceps*. Anterior wing.

3. *Opius foveolatus*. Anterior wing.

4. *Opius anastrephae*. Anterior wing.

5. *Opius politus*. Anterior wing.

6. *Opius anthomyiae*. Anterior wing.

7. *Opius foersteri*. Anterior wing.

8. *Opius apicalis*. Anterior wing.

9. *Opius mandibularis*. Anterior wing.

10. *Opius oscinidis*. Anterior wing.

11. *Opius dimidiatus*. Anterior wing.

12. *Opius striativentris*. Anterior wing.

13. *Gnamptodon nepticulae*. Anterior wing.